Active Bone Morphogenetic Protein 2 (BMP2)

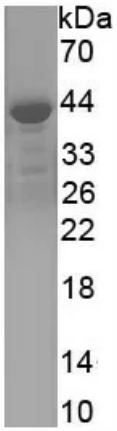
Catalog#:PEH12009

概述（Summary）

别称（Alternative Names）	BMP2A; BMP-2A; Hemochromatosis Modifier
纯度（Purity）	Greater than 97% as determined by reducing SDS-PAGE.
内毒素（Endotoxin level）	Please contact with the lab for this information
蛋白构建（Construction）	【Gln283-Arg396】
Accession #	P12643
表达宿主（Host）	E.coli
种属（Species）	Homo sapiens (Human)
预测分子量（Predicted MW）	42.9 kDa
制剂（Form）	Lyophilized from a 0.2 μm filtered solution of 20mM Tris, 150mM NaCl, pH8.0, containing 1mM EDTA, 1mM DTT, 0.01% SKL, 5% Trehalose and Proclin300.
运输方式（Shipping）	The product is shipped with ice bag. Upon receipt, store it immediately at the temperature listed below.
稳定性&储存（Stability &Storage）	12 months at -20°C to -80°C in lyophilized state.6 months at -20°C to -80°C under sterile conditions after reconstitution.7-10 days at 2°C to 8°C under sterile conditions after reconstitution.Please minimize freeze-thaw cycles.
复溶（Reconstitution）	Reconstitute in 10mM PBS (pH7.4) to a concentration of 0.1-1.0 mg/mL. Do not vortex.
背景介绍（References）	Growth factor of the TGF-beta superfamily that plays essential roles in many developmental processes, including cardiogenesis, neurogenesis, and osteogenesis. Induces cartilage and bone formation. Initiates the canonical BMP signaling cascade by associating with type I receptor BMPR1A and type II receptor BMPR2. Once all three components are bound together in a complex at the cell surface, BMPR2 phosphorylates and activates BMPR1A. In turn, BMPR1A propagates signal by phosphorylating SMAD1/5/8 that travel to the nucleus and act as activators and repressors of transcription of target genes. Can also signal through non-canonical pathways such as ERK/MAP kinase signaling cascade that

regulates osteoblast differentiation. Stimulates also the differentiation of myoblasts into osteoblasts via the EIF2AK3-EIF2A-ATF4 pathway by stimulating EIF2A phosphorylation which leads to increased expression of ATF4 which plays a central role in osteoblast differentiation.

电泳图（SDS-PAGE image）



Greater than 97% as determined by reducing SDS-PAGE.

活性图（Bioactivity image）

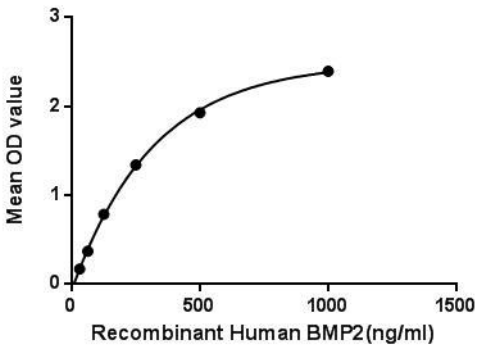


Figure 1. The binding activity of BMP2 with NOG

Bone morphogenetic protein 2（BMP2） belongs to the TGF-β superfamily of proteins. It plays an important role in the development of bone and cartilage. It is involved in the hedgehog pathway, TGF beta signaling pathway, and in cytokine-cytokine receptor interaction. BMP2 is also involved in cardiac cell differentiation and epithelial to mesenchymal transition. Like many other proteins from the BMP family, BMP2 has been demonstrated to potently induce osteoblast differentiation in a variety of cell types. Besides, Noggin (NOG) has been identified as an interactor of BMP2, thus a binding ELISA assay was conducted to detect the interaction of recombinant human BMP2 and recombinant human NOG. Briefly, BMP2 were diluted serially in PBS, with 0.01% BSA (pH 7.4). Duplicate samples of 100ul were then transferred to NOG-coated microtiter wells and incubated for 2h at 37℃. Wells were washed with PBST and incubated for 1h with anti-BMP2 pAb, then aspirated and washed 3 times. After incubation with HRP labelled secondary antibody, wells were aspirated and washed 3 times. With the addition of substrate solution , wells were incubated 15-25 minutes at 37℃. Finally, add 50μL stop solution to the wells and read at 450nm

immediately. The binding activity of BMP2 and NOG was shown in Figure 1, and this effect was in a dose dependent manner. To test the effect of BMP2 on cell apoptosis, HepG2 cells were seeded into triplicate wells of 96-well plates at a density of 4,000 cells/well and allowed to attach overnight, then the medium was replaced with various concentrations of recombinant human BMP2 diluted with 5% serum standard DMEM. After incubated for 72h, cells were observed by inverted microscope and cell proliferation was measured by Cell Counting Kit-8 (CCK-8). Briefly, 10 µl of CCK-8 solution was added to each well of the plate, then the absorbance at 450 nm was measured using a microplate reader after incubating the plate for 1-4 hours at 37 ℃. Apoptosis of HepG2 cells after incubation with BMP2 for 72h observed by inverted microscope was shown in Figure 1. Cell viability was assessed by CCK-8 (Cell Counting Kit-8) assay after incubation with recombinant human BMP2 for 72h. The result was shown in Figure 2. It was obvious that BMP2 significantly decreased cell viability of HepG2 cells. The ED50 of recombinant human BMP2 is 3.25 ug/ml.

注意事项（Note）

For Research Use Only , Not for Diagnostic Use.